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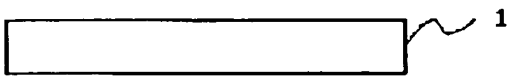
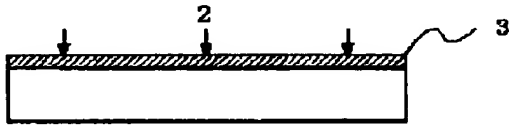
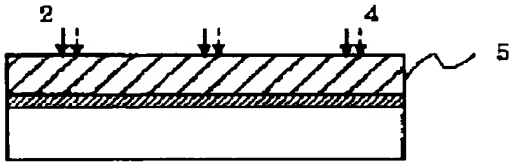
TITLE : PRODUCTION OF SILICON CARBIDE THIN FILM AS WELL AS SILICON CARBIDE THIN FILM AND LAMINATED SUBSTRATE







ABSTRACT : PROBLEM TO BE SOLVED: To obtain a silicon carbide thin film which has decreased defects, has excellent crystallinity, surface homology, electrical characteristics, etc., and is adequate for a semiconductor substrate, etc., by laminating silicon carbide on a silicon substrate having an oxygen concn. of a specific value or below.

SOLUTION: The single crystal substrate 1 having the oxygen connection. of $\leq 1\times10^{16}$atms/cm^3 is formed by a floating zone method or under-the-magnetic field Czochralski method or epitaxial growth method. This silicon substrate 1 is then installed in a reaction furnace and acetylene 2 is supplied in the hydrogen atmosphere and simultaneously, the substrate is heated to a high temp. to form the carbide layer 3 on the surface of the silicon substrate 1. The silane compd. 4 as the gaseous raw material of the silicon and the acetylene 2 as the gaseous raw material of the carbon are alternately supplied into the reaction furnace, by which the silicon carbide thin film 5 is formed on the surface of the silicon substrate 1. The semiconductor element formed by using the resulted silicon carbide thin film 5 has the excellent electrical characteristics.